PCE

Pharma Vision Inspection

METTLER TOLEDO

Operating Manual

360° Inspection Station

Version A / Doc No.:
360°_INSPECTION_STATION_OM_EN_A_EXT.DOC

Contents

Preface

General Information

These operating instructions shall add to the correct and safe application of the PCE components. Therefore, please observe the following instructions.

It is necessary to read the complete operations instructions before starting up the PCE components in order to avoid false application of the systems.

For your own safety, please observe the safety instructions in the operating manual. Please read the instructions carefully even if you are already used to the application and operation of PC components.

This symbol displays safety instructions or the danger of injury, danger of product damage and environmental damage.

	< Signal >
	< type of danger >
	< consequences >
	< measures >

The following symbol indicates important instructions and specific information:

	< Note >
	< important instructions >

The Instruction Manual has to be always available for the operator, in full, where the machine is installed. Please make sure that the Instructions Manual remains in place where the machine is installed.

These operating instructions do not replace installation and service by trained personnel!

These operating instructions are to be treated as strictly confidential. The information given herein shall not be copied, misused or made available to third parties without PCE's prior written consent.

PCE is continuously enhancing all components.. Modifications of the scope of delivery in form, technique and configuration are subject to change. We appreciate your understanding that no claims can be made from information and illustrations of this operation manual.

1 Safety Instructions

1.1 Explanation of Symbols

The following symbols and notes are warning signals of possible damage to person or property or assist you as guidelines.

	DANGER!
⚠️	This symbol can be found in the operations manual at all references concerning operational safety, if not adhered to there will be danger to body and life of persons.
	Always observe the instructions carefully and perform with extreme attention and wariness.

	Note
ℹ️	This symbol indicates the appropriate handling of PCE-components.

1.2 Basic Safety Measures

For safe operation of the PCE components the following points must be observed:

- The components must be mounted on a stable, mechanical, permanently fixed attachment.

- During operation, the components must be protected against the influence of external light.

- The power supply of the components is provided by 24 V DC-technique and supplied by an external power source. All necessary safety measures for this type of technique are to be adhered to.

The device may only be operated by persons trained on and authorized to use the device, who are familiar with the Instruction Manual and are able to operate the device accordingly.

	DANGER!
⚠️	Lightning:
	• Lightning causes damage to the eyes
	• Do not look into the lightning without adequate eye protection.

To ensure safe operation of the system, repeated inspections are to be carried out on all the relevant safety parts, and particularly the above-mentioned points and Instruction Manual are to be observed.

1.3 Operator's Duty to Exercise Due Care

The PCE components are developed and constructed under consideration of the harmonized norms to be adhered to, as well as further technical specifications. They meet the latest technical requirements and ensure the highest level of security during operation.

The safety of the system during everyday operation can, however, only be ensured if all the necessary, relevant measures are taken. Planning these measures and controlling their implementation is part of the system operator's responsibility for exercising due care.

The operator must ensure that:

- the system is used in accordance with the stipulations,

- the system is only operated in perfect, fully functional condition,

- the Instructions Manual is always in a readable condition and is available, in full, where the machine is installed,

- only respectively qualified and authorized personnel operate and service the system,

- this personnel is instructed on a regular basis on all the relevant aspects concerning work safety, and that they are familiar with the Instruction Manual and the safety instructions it contains,

- all the system features relating to safety are carefully tested at regular intervals,

- the higher the safety risks are, protected against by this device, the more frequent regular inspections must be carried out.

1.4   Protection against Injuries Caused by Electrical Power

	DANGER!
	The system is operated with supply voltage! Contact with live parts can cause perilous state of shock and severe burns.
	• Operate system with duly mounted housing only.
	• Unplug electric supply prior to cleaning and care.
	• In case of liquid has been spilled on the system, immediately switch off the system and unplug electric supply.

1.5   Protection against Injuries Caused by Mechanical Impact

	DANGER!
	Danger of injury by movable and rotating parts! Always adhere to the following rules:
	• Wear adequate personal protective equipment
	• Switch off machine prior to mechanical adjustment work.

1.6   Transport, Installation and Start-up

During transport it must be ensured that the device is packed and transported as such that it is protected against moisture and impact.

When installing the device in an industrial environment, this should typically be done where the adverse effects of dust, moisture, temperature and vibration are at their very lowest.

Safe operation of the device can only be guaranteed if specially trained personnel have conducted the installation and start-up.

	DANGER!
	Danger of tripping and tumble accidents!
	Tripping- and tumble accidents lead to severe injuries!
	Install machine connections (cables) adequately in order to avoid tripping!

	DANGER!
⚠️	Rotating axes!
	Rotating axes! Can pull in and tear hair, clothing and jewelry.
	Do not operate machine with opened housing! Keep away long hair, loose clothing, jewelry etc. from machine!

	DANGER!
⚠️	Bruise: Moving Camera Ring at start-up!
	Camera Ring performs a reference run at start-up. When housing is opened there is a danger of bruising.
	When housing is opened, be careful not to allow fingers or articles of clothing to get caught into any of the moving parts.

1.7 Do not open Camera Housing

Only personnel trained by PCE, is allowed to open the housing of the 360° Inspection Station.

	DANGER!
⚠️	Moving parts!
	• Never open the housing of the 360° Inspection Station. • Danger of bruising by moving parts • In case of liquid has been spilled on the system, immediately switch off the system and unplug electric supply.

2   About this Manual

2.1   General

First this operating instruction describes the system "360 Degree Inspection System". After learning the application area, the main components, main functions and detail functions in mechanical, electrical and controlling subchapters are described. The following chapters characterize the beginning of operation and the use in production. Appendices give detailed and additional information for experts according to several chapters.

2.2   Scope and Audience

This manual describes how to use and configure the 360° Inspection Station. It is intended for personnel who operate the system in order to perform 360° Inspection Station for packing lines. This includes:

- Operators
- Supervisors
- Administrators
- Engineers

2.3   Technical Support and Trainings

At our website you find the latest information about our products and services. Please visit: www.pharmacontrol.de

For any requests please do not hesitate to contact us via email or phone:

Service line: +49 (0) 6251 85 45 – 555 / Email: mtpce.service@mt.com

We provide extensive seminars and trainings that will help you get the most from your equipment. Our application seminars focus on industry and application issues. Individual trainings can be arranged on demand. Please contact us to request your individual training.

3   Components

The following pictures give an overview of the most important components of the 360° Inspection Station. The housing is made of stainless steel.

The components are separated in:

- Mechanical and electrical components (1,3,5)
- Control components (2,4)

| Pos.	Name	description
1	Control cabinet	Electrical cabinet consist of all electrical components and wirings
2	LED signal lamp	Shows the state of the system (See chapter below)
3	Inspection housing	Contains 7 cameras, illumination, and camera trigger sensor
4	Touch screen	For control of the Inspection System via user interfaces of camera software and PLM
5	Hand wheel for bottle diameter	This wheel has to be turned if a format with another bottle diameter is used.
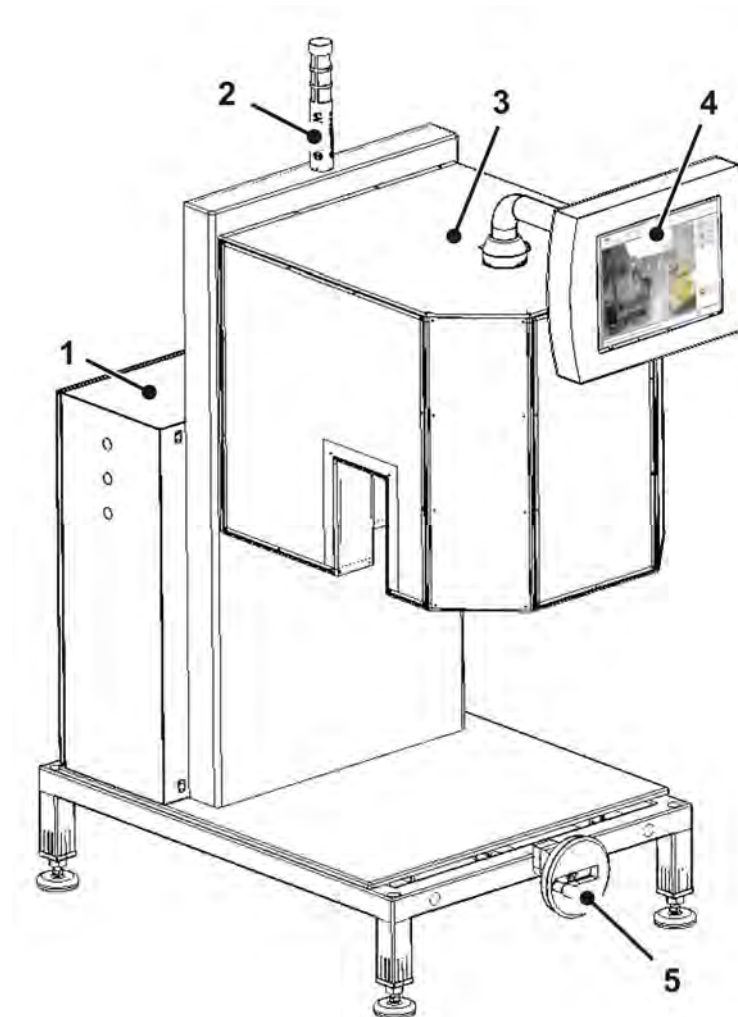
Figure 3-1: 360° Inspection Station - Overview

4　Functions

4.1　Scope

The intended use of the system is the pharmaceutical, medical or research area, where printed text on the side of the caps will be checked by an automated system due to quality requirements. The caps can be orientated in any direction. The system detects wrong and poor quality prints and ejects the bottle when an error is detected.

4.2　Main Functions

- Detect wrong / poor quality barcodes of a bottle.
- Reject bad samples to the reject bin. The bottles can be orientated in any direction.

User Interface Main Functions

The user interface allows the operator to interact with the system for:

- Machine controls
- Viewing system messages to the operator
- Setting up and creating new formats.

Control Lamps (Signal Pillar)

The control lamps have four stages: red / yellow / green / green flashing

- Green:　System is running
- Red: System stopped caused by error or emergency stop
- Yellow　*flashing:*　Teach in mode
- Green　*flashing:*　Machine is ready, waiting for the camera to start

Master/Slave

The PLM software is the master and the MPI software is the slave. This means whenever you want to stop the production, you have to do this at first in the PLM and after this you can stop the production in the MPI software, too. Reversing this sequence leads to an error message in the PLM and production is stopped automatically. When starting the production you have to start it only in the PLM software, while the MPI software has to be in "Ready for Production" mode.

5 Start of Operation

5.1 Electrical Checks and Working Steps

1. Switch on main switch
2. Verify the correct color of control lamps
3. Verify if the system components (cameras, user interface) are ready

5.2 System Checks and Working Steps

1. Boot the System
2. Chose the format
3. Start running the machine in production run
4. Verify the correct function of the system components

6   Operation

6.1   Menu structure

Figure 6-1 shows the menu structure of the application. After login the main menu is divided into three submenus.

- The **format menu** for loading and providing a format.

- The control is started in the **production menu**, as well as adjusting tolerances and analyzing occurred errors.

- The **management menu** provides basic settings for the system, e.g. setting up a new user or standard settings for new formats.

The blue areas are optional and can be switched on if needed. The orange areas can be adopted with their options.
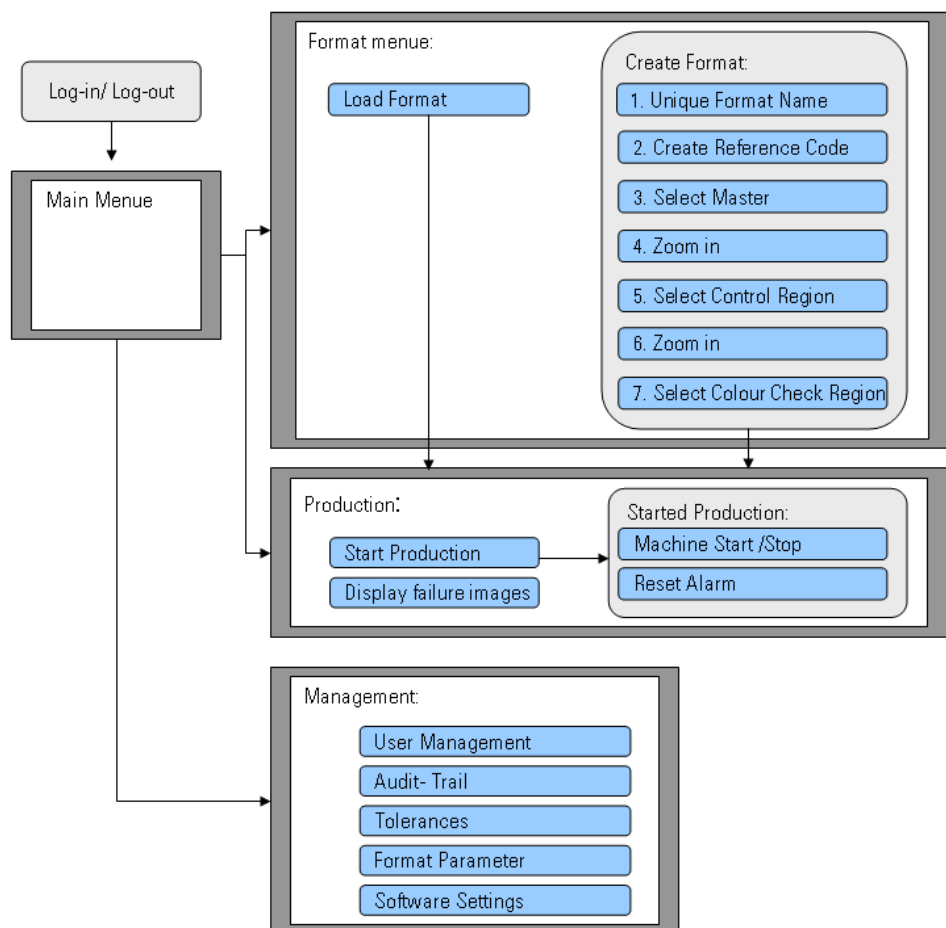

Figure 6-1: Menu structure of the application

6.2   Structure of control window

The control window of the software is divided into 3 areas.

- The **program head** shows the current format name, the logged-in user and some statistic data of production.

- The area for **program messages** is at the bottom edge of the program window. Current references, assistance texts, warn -und error messages can be found here.

- The **main window** in the center shows the individual program menus with the camera pictures, settings and assistance videos. On the right side there are always the respective control buttons for the possible program functions.
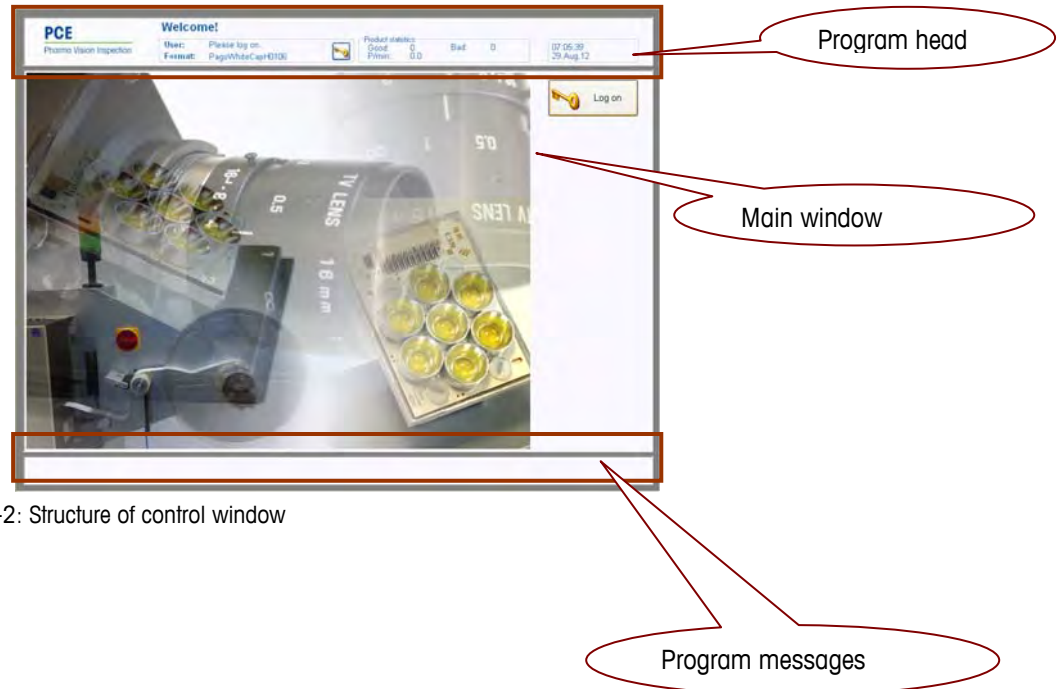

Figure 6-2: Structure of control window

7 Functions in Detail

7.1 Starting the System

To open the camera software, perform the following steps.

Summarized Steps:

1. Switch on the 360° Inspection Station

2. Start the PLM and Log-on at the PLM

3. Switch to the MPI Software

The steps are described below.

Step	Action
1.	Switch on the 360° Inspection Station

The PLM and the camera software are started automatically after switching on the 360° Inspection Station.

	Note!
	Regard the sequence of starting the stations, see chapter "Starting The PLM" at the PLM Manual.

Step	Action
2.	Start the PLM and Log-on at the PLM

When you have logged-in to the PLM, you are automatically logged-in to the MPI.

Step	Action
3.	Switch to the MPI Software

At the PLM screen you have to switch to the MPI screen. Use the Switch Button at the lower left corner to switch between PLM and MPI (Megapixel Print Inspection) software. The MPI software is in "Ready for Production" mode. The screen looks as follows:
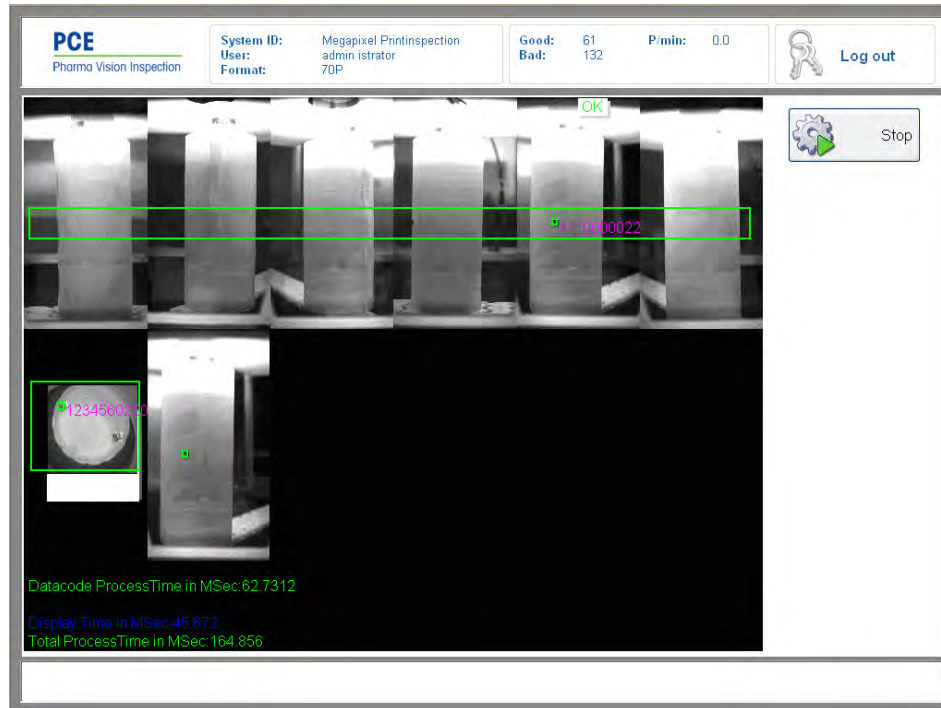
Figure 7-1: Ready for Production screen

At this screen you see the last picture taken at production. From here you can get to the MAIN screen by pressing *Stop.*

7.2 Log-on to the Megapixel Print Inspection (MPI) Software

In order to work with the MPI, it is necessary to log on with user name and password. The default account with administrator rights is:

User name: 1

Password: 1

This account can be deactivated. If the above user data are not available, a help video (optional) will be displayed by pressing the "help" button to give you further assistance.

Upon starting the software the user has to log on successfully with his user name and password. The log-on window will be displayed after switching-on the label check station and the automatic start of the software or by pressing *Log on* at the screen below (See Figure 7-2: Log-on screen.
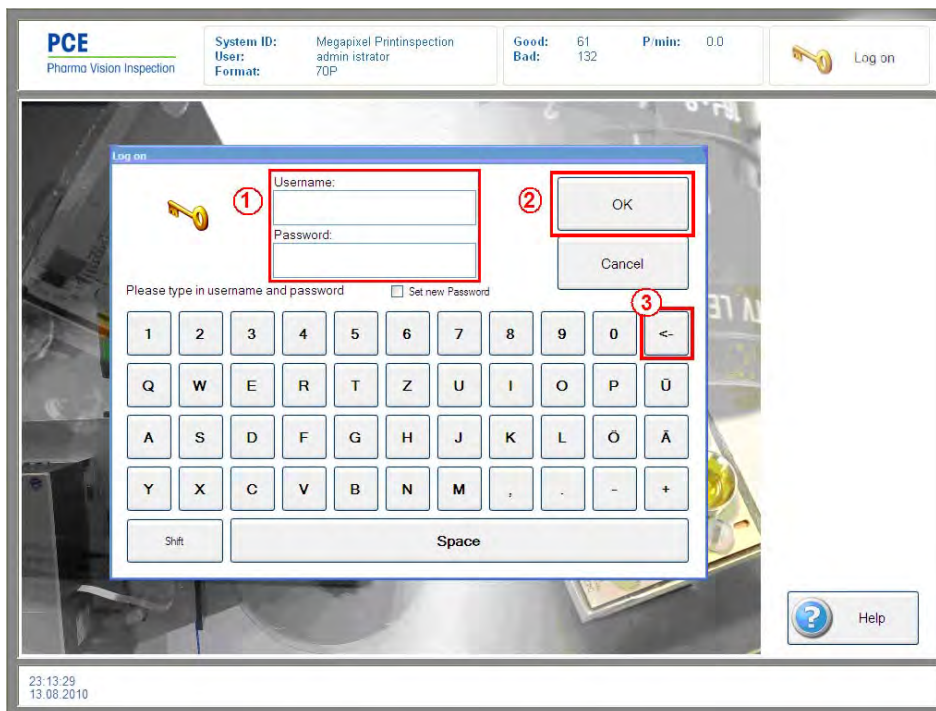
Figure 7-2: Log-on screen

To log on perform the following steps at the screen shown in Figure 7-2:

Pos.	Description
(1)	Enter valid username with corresponding password.
(2)	Confirm by pressing OK.
-	If name or password is invalid, correct the entry. Letters can be deleted via ″<-″.

7.3   Main Menu

The figure below shows the main menu where new formats can be created, system settings can be changed and error messages can be receipted. Errors are clearly indicated by a red-colored message and an error description in the footnote.

Figure 7-3: Main menu

The main menu is displayed…

- after start and successful log-on procedure. The indicated buttons can vary depending on user level (authorization).
- if *Back* has been pressed once or repeatedly in a submenu.

The following table gives an overview of the functions the MAIN MENU screen provides. Detailed steps are described in the following chapters.

Pos.	Task	Action
(4)	Create a new format	Press *Format* in the main menu
(4)	Load a new format	Press *Format* in the main menu
(5)	Start production	Press *Production* (available only upon creating a valid format)
(6)	Conduct systems installations	Press *Management* (requires admin-rights)
(7)	Exit program	Press *Exit*

7.4 Format Handling

To display the FORMAT MANAGEMENT press *Format* in the MAIN MENU.

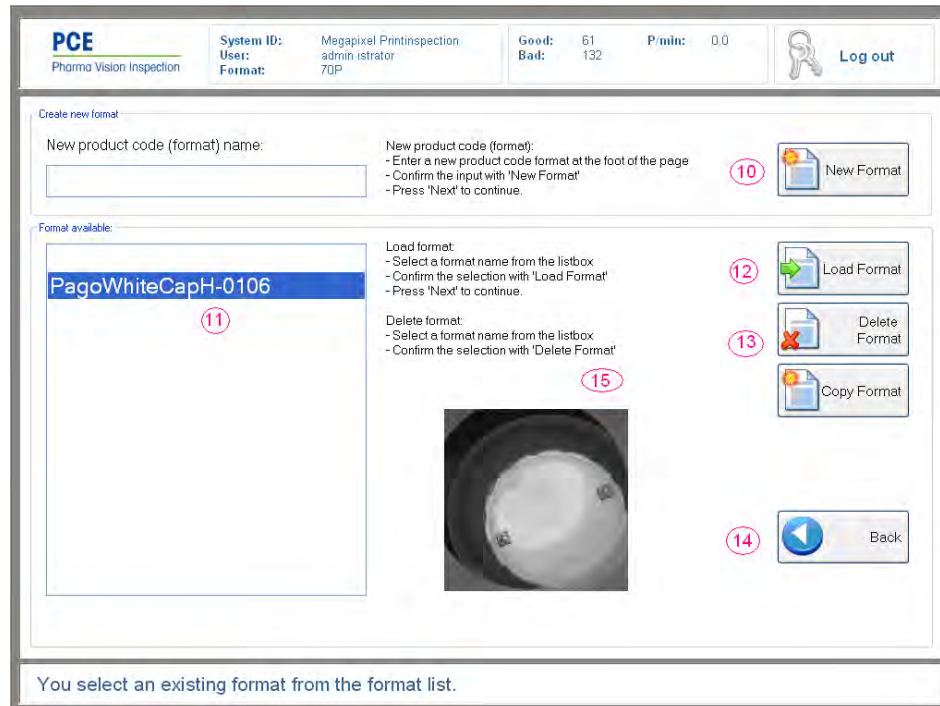|	Note!
i	User level (authorization) is to be respected! Visualization of the buttons depends on the user level (authorization).

Figure 7-4: Main Menu > Format

The following table gives an overview of the functions the FORMAT MANAGEMENT screen provides. Detailed steps are described in the following chapters.

Pos.	Task	Description
(10)	Create new format	A new format name can be entered. If this format has been assigned already, the button "continue" will not be displayed, the user is asked to choose a different format name instead. By clicking "continue" the set-up assistant will be displayed.
(11)	-	List of available Formats
(12)	Load format:	The blue-colored format in the format list "Format available" on the left side of the screen (11) will be loaded for production. In the Screenshot above the format "PagoWhiteCap-H0106" would be loaded as an example. The production screen will be displayed automatically.
(13)	Delete format:	The format chosen in the format list will be deleted. Note: This can last for a few seconds (less than 10 seconds).
(14)	Copy Format:	The copy feature is used to create a new format on basis of a copied format. The new format will have the same
(15)	Reference Image	Reference image used for the format is shown.

7.5   Creating new Format for Label Inspection

In this chapter it is described how to create a new format for a bottle. The format includes the label at the side and the label on the cap of the bottle (if applicable). To create a new format for a bottle, go to the FORMAT MANAGEMENT screen (See chapter 7.4).

> **Note!**
> User level (authorization) to be respected!
> Visualization of the buttons depends on the user level (authorization).

To create a new format for label inspection, perform the following steps:

Summarized Steps:

1. Enter a name for the new format at the field "New product code (format) name"

2. Press *New Format*

3. Enter product diameter and height

4. Press next

5. Press Image

6. Select Mode: External Trigger

7. Wait for message: camera initialized successfully. Found Cameras: <6>

8. Press Machine start

9. Press *next* once a good image was taken.

10. Press *Next*

(10a.) Press Barcode (if in manual mode)

(10b.) Select the ROI (if in manual mode)

11. Press *PLM*

The steps are described below.

At the format Management screen perform the following steps:

Step	Action
1.	Enter a name for the new format at the field "New product code (format) name"
2.	Press *New Format*

See screen:

Figure 7-5: Main Menu > Format (Enter name for new Product)

Once an appropriate format name has been assigned and the *New Format* button was clicked a progress bar will appear, as long as the cameras move down to the reference position.

Step	Action
3.	Enter product diameter and height
4.	Press next

See screen:

Figure 7-6: Typing in the diameter and height

The "next" button will appear after entering diameter and height. After pressing *next*, the cameras will move to the correct position.

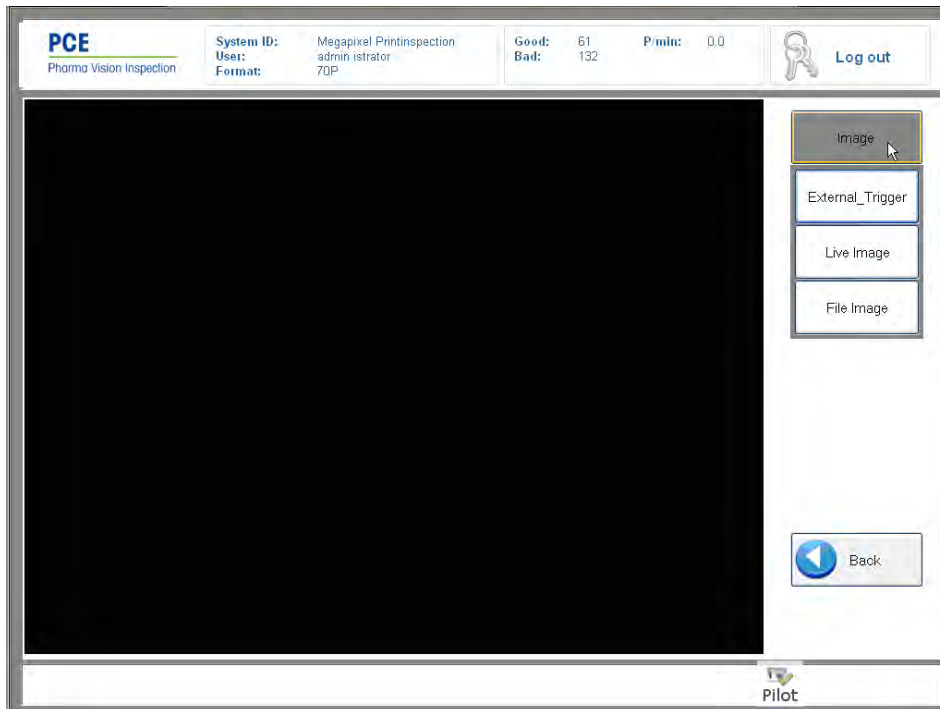| Step	Action
5.	Press Image
6.	Select Mode: External Trigger

Figure 7-7: Options of getting a reference Image

An example image must be taken that serves as a reference image. By pressing *Image*, the mode of the trigger can be chosen to record an image. There are three different modes:

- External trigger
- Live Image
- File Image

Please click on the External trigger button as shown above. When pressing this button, the cameras are initialized. It takes approximately 30 to 40 seconds for camera initialization. See screen below:
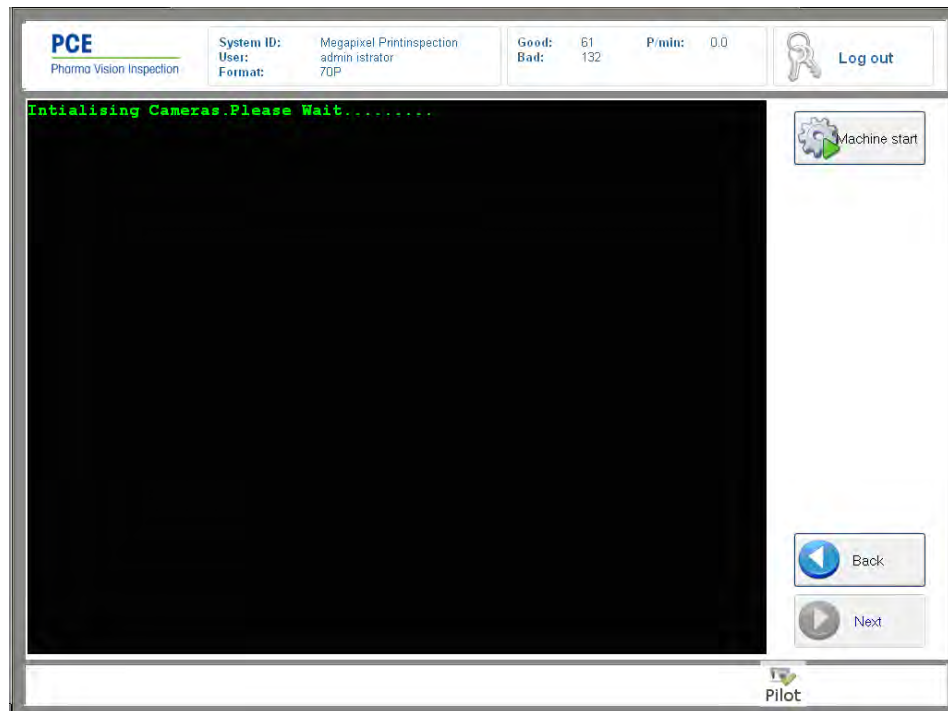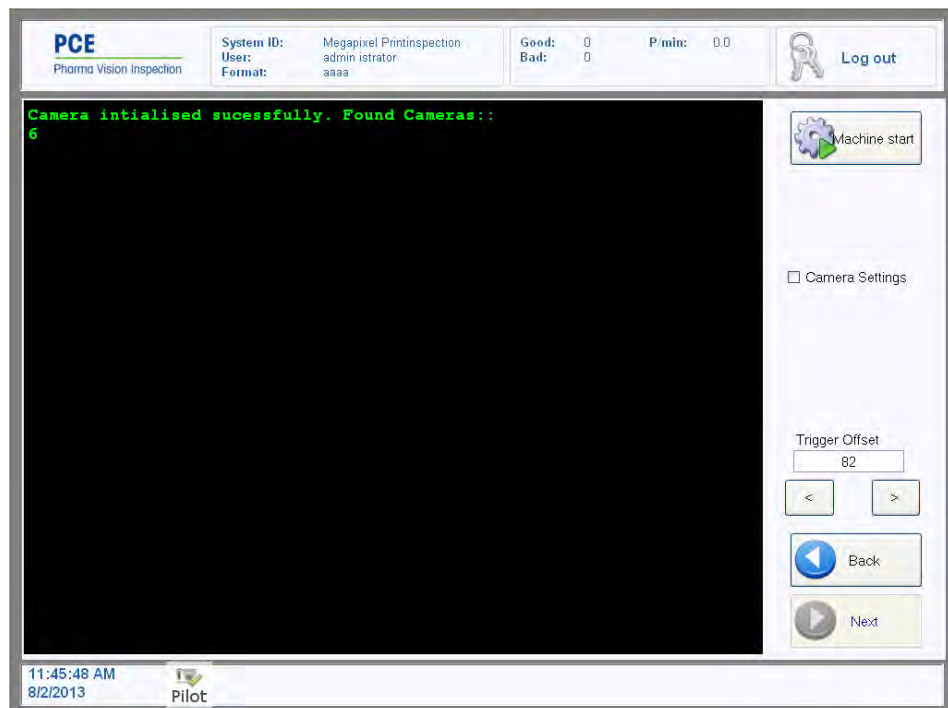
Figure 7-8: Screenshot after choosing the external trigger mode

Step	Action
7.	Wait for message: Camera initialized successfully. Found Cameras: <6>

See screen:

Step	Action
8.	Press Machine start
9.	Press *next* once a good image was taken.

See screen:

Figure 7-9: Triggered Image

Once all the cameras are ready (Message "Camera initialized successfully. Found Cameras: <6>" appears), the 'Machine start' button has to be pressed, in order to start the conveyer. Press the "Machine Start" button. Images of the bottles passing through the 360° Inspection Station will now be captured as shown below in Figure 3-1. Once a suitable image is obtained, that can be used as a reference image, press *next*.

Step	Action
10.	Press *Next*

After taking the image there are 7 pictures, one for each camera from the side. The picture at the left bottom as shown in Figure 7-10, is the image from the top camera.

Figure 7-10: Teaching in a barcode

If you are in automatic teaching mode (default) keep on with Step 11. If you are in manual mode, keep on with Step 10a.

Step	Action
10a.	Press *Barcode*
10b.	Select the ROI

Press the *Barcode* and select the ROI where the barcode may be in all images. Drag, pull and drop the red lines to configure the size of the ROI.
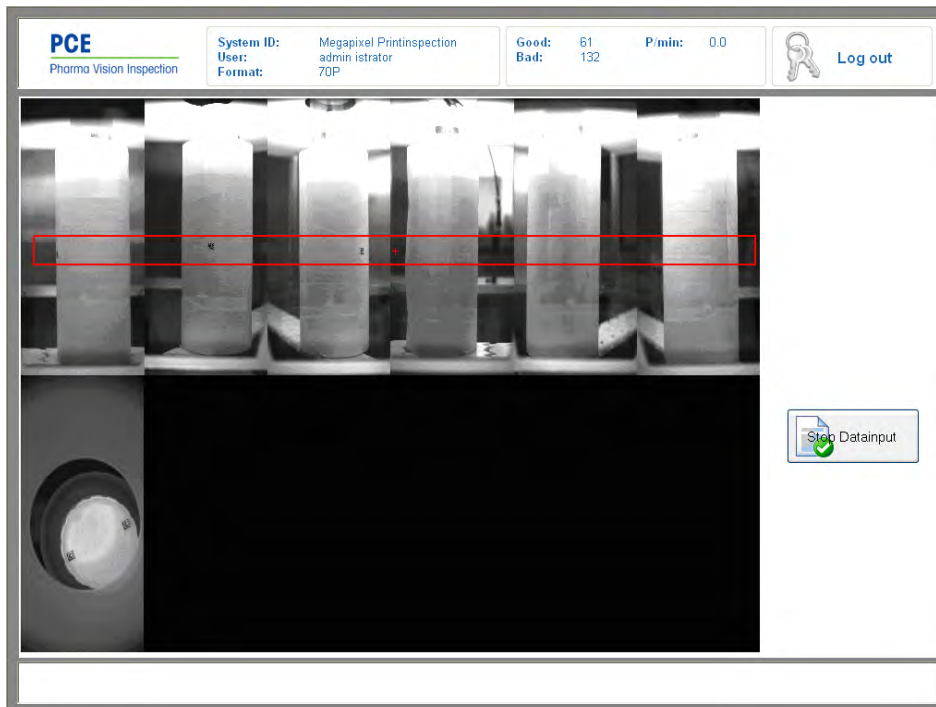

Figure 7-11: Teaching in a barcode

After choosing the area press "Stop Datainput". The barcode will be detected automatically. The selected height of the ROI depends on the tolerances in the position of the code.

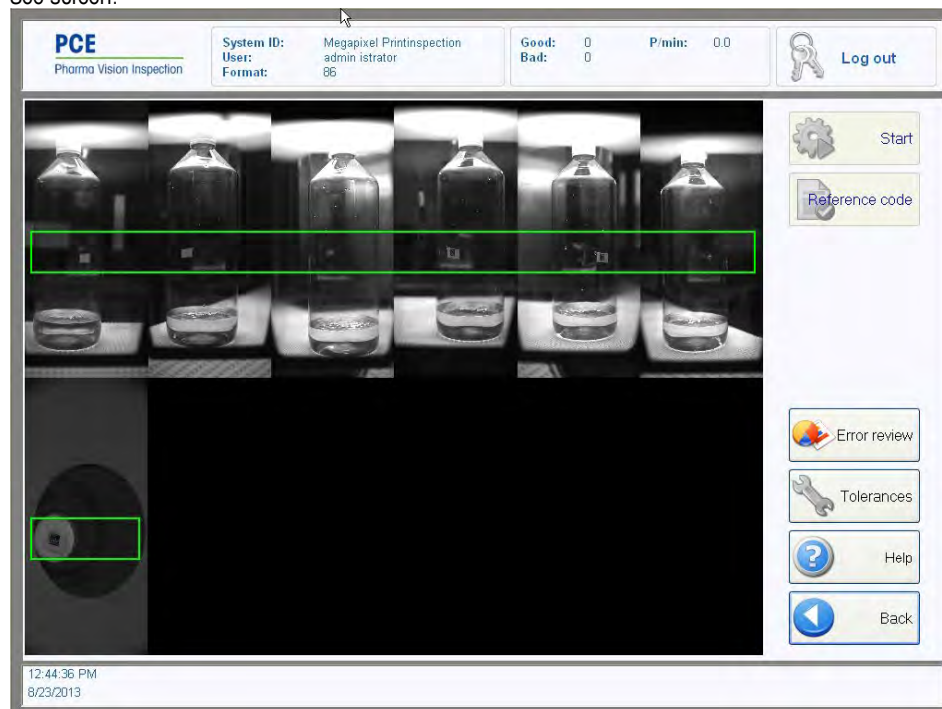| Step	Action
11.	Press PLM

See screen:

Figure 7-12: Start Production Screen

When this screen is shown you can go back to the PLM using the Switch Button and use the new format there.

	Note!
	• When you have changed a format which already exists in the PLM, you can start the production and changes are taken over. You do not need to load the fields in the PLM. • When you have created a new format in the MPI, you have to load the format and the fields in the PLM. Please refer to section "Line Format" in PLM Manual.

Once the production is started by the PLM, the MPI software is switched to the READY FOR PRODUCTION Screen (see below).
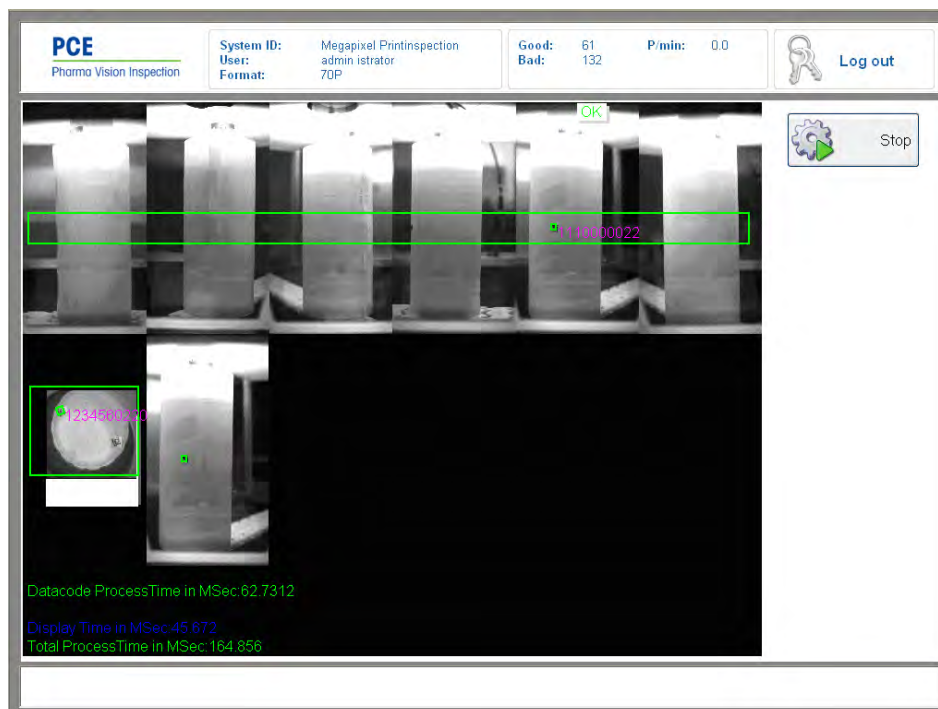
Figure 7-13: Ready for Production Screen (Production has been started)

7.6   Editing a Format

7.6.1   Getting to the Tolerances Screen

A format can be edited manually, if the automatic teaching did not lead to the expected result. This is done at the TOLERANCES screen.

To create a new format for label inspection, perform the following steps:

Summarized Steps:

1. Load the Format

2. Go to MAIN screen.

3. Press *Production*

4. Press *Tolerances*

5. Press tab 'General'

The steps are described below.

Step	Action
1	Load the Format as described in chapter 7.4.

The format which should be edited has to be loaded previously.

Step	Action
2	Go to MAIN screen.

The MAIN screen is available in two ways:

a) If you are at the READY FOR PRODUCTION screen press *Stop*.
b) If you are in any other screen press *Back.*

Step	Action
3	Press *Production*

See screen:

Figure 7-14: Main

The PRODUCTION menu is opening (See below).

Step	Action
4	Press *Tolerances*

See screen:

Figure 7-15: Main > Production

Step	Action
5	Press tab 'General'

7.6.2 Editing the Format Tolerances

The editing options for the selected camera format are described in this chapter.

Button description

To increase or decrease the values of a field, put the curser into the field and use the arrow keys as described in the following table:

Button	Function
< >	Increase / decrease value in intervals of one.
<< >>	Increase / decrease value in intervals of ten.

	Increase / decrease value in intervals of hundred.
<< >> < >	

Tab: General

Figure 7-16: Main > Production > Tolerances (General tab)

The screen shown in Figure 7-16: provides the following options:

Pos.	Allowed values	Description
Enable camera	0 or 1	0 = the program will run on a file camera; 1= it will work on the cameras
Save Error images	0 to 5	0 = Do not save error image. 1 = Save error screen dump. 2 = Save error raw image. 3 = Save error raw image and screen dump. 4 = Save all raw images. 5 = Save all raw and screen dumps.
No. Images to save	0 to 5	Number of images to save. Maximum value is 5
Top camera active	0 or 1	0 = switch off top camera; 1= switch on top camera.
Log production result	0 or 1	0 = do not log production result in CSV file. 1= log production result in CSV file.
Code process time	0 or 1	0 = Do not show datamatrix processing time in production screen . 1 = Show datamatrix processing time in production screen.
Show region of interest for Code	0 or 1	0 = Do not show Region of Interest 1= Show Region of Interest

Press *Save* to apply the changes.

Tab: Preprocessing

Figure 7-17: Main > Production > Tolerances (Preprocessing tab)

The screen shown in Figure 7-17: provides the following options:

Pos.	Allowed values	Description
Rotate Image	0 or 1	0 = Rotate Image OFF; 1 Rotate Image ON
Sharpen Image	0 to 4	0 = Sharpen Image OFF; 1 to 4 = Sharpen Image ON

Press *Save* to apply the changes.

Tab: Datamatrix Codes

Figure 7-18: Main > Production > Tolerances (Datamatrix Codes tab)

The screen shown in Figure 7-18: provides the following options:

Pos.	Allowed values	Description
Teaching mode	1 to 4	1 to 2 = Not applicable 3 = Manual Mode 4 = Automatic mode (Default)
Offset width	1 to 1000	Offset for the region width.
Offset height	1 to 1000	Height of the region.
Readonly mode	0 or 1	If 'Readonly mode' is set to '1', the software will return a 'good' signal if a barcode is found, so it is not compared with a reference barcode.
Wild card active	0 or 1	*0 = Wild card active* *1 = Wild card inactive*
Polarity	0 or 1	When 'Polarity' is set to '0' it means, that there is a black barcode on white background. When it is set to one it is the other way around.
Contrast	1 of 200	Defines the smallest contrast for the barcode with respect to background.
Timeout	30 to 1000	The maximum time (in ms) the finding of a barcode can last.

Press *Save* to apply the changes.

Tab: SPS

Figure 7-19: Main > Production > Tolerances (SPS tab)

The screen shown in Figure 7-19: provides the following options:

Pos.	Allowed values	Description
Hardware good signal	1	Do not change this value!
Camera movement	1	Do not change this value!
Fixed focus diameter	85	Do not change this value!
Fixed focus distance	78	Do not change this value!
Movement position	78	Do not change this value!

Press *Save* to apply the changes.

Button: Print Inspection

At the *General* tab you see the button "Print Inspection", click it to get to the screen where you can change the barcode fields.

Figure 7-20: Main > Production > Tolerances (General tab)

The production window can be achieved by pressing *Back*.

7.7   Loading Format and Starting Production

After starting the program, the last used format will be loaded and production can be started (See chapter 8.1).

8   Production

The menu picture appears after successful teach-in of a format or pressing the Production button. Operating instructions:
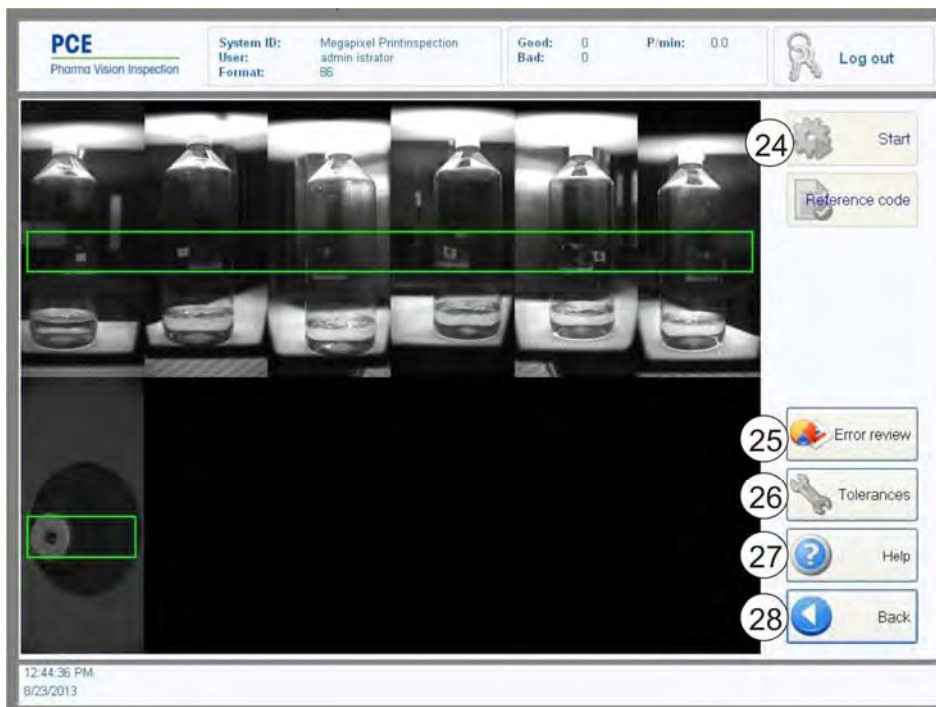
Figure 8-1: Starting the Production

8.1   Start of Production

The screen shown in Figure 8-1 provides the following options:

Pos.	Description
(24)	Start the production modus of the software with "start" button

8.2   End of Production

The screen shown in Figure 8-1 provides the following options:

Pos.	Description
(25)	Error review: Error pictures can be visually inspected on this screen
(26)	Tolerances: Tolerances of the print controls can be modified with the correct user level if needed.
(27)	Help: Provides a context sensitive help that leads you to the corresponding chapters of the manual.
(28)	Back: The Back button leads back to the previous screen.

8.3 Error Analysis

The error analysis of the production menu shows the pictures of the latest false readings. These pictures can be exported for further archiving. The export path for the pictures is <C:\temp>, but can be configured as desired. With "Reset Counter" good and bad product statistics are set to zero and the existing pictures indicating defects are deleted.
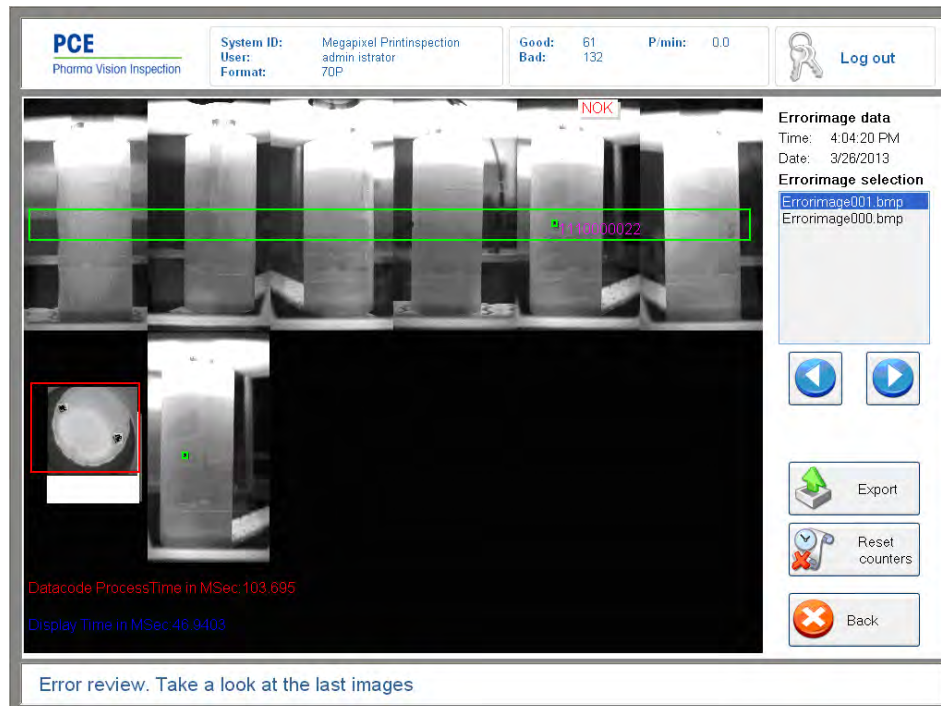
Figure 8-2: error images

9   Management /Administration

The management menu covers all system settings. In this menu, a wide variety of parameters affecting the configuration and operation of the Megapixel Printinspection software can be set. This menu is generally accessible to users who have administrator rights. The management menu comprises the following areas:

- User management
- Audit-Trail
- Standard tolerances
- Advanced camera parameters
- Software setting
- Audit-PDF

The individual areas are organized in tab form and can be selected by touching the tab name in the top of the window. Select "Back" if you want to exit the management area.

	CAUTION!
	The settings in the management area directly affect the function and precision of the various inspections and of the software in general. An improper configuration can have serious consequences (malfunction, non-recognition of defective products, and high rate of false exclusions).
	The changing of these parameters must be restricted to technicians with the appropriate professional training and knowledge!

	Note!
	Note client-specific configuration!
	Depending on the configuration, the display and the available operating controls may differ from the illustrated screenshots.

10 Administration of Users and Groups

10.1 User management

All current users are managed in user management. New users can be created and global settings regarding access to the software can be adjusted.


Figure 10-1: creating a new user

The screen shown in Figure 10-1: provides the following options:

Pos.	Description
(41)	User list: Listing of all current users.
(42)	User details: entry of user name and password, and where appropriate, the first and last name.
(43)	Active: Setting for activating or deactivating a user.
(43)	User Rights: Setting up the user group and hence the rights in the software.
(43)	Additional rights: For specifying whether users may end programs, shut down the system, or change tolerances.
(44)	Password expiration (optional): Password validity period in days.
(44)	Automatic logout (optional): Time until automatic logout in minutes.
(44)	Password configuration: Activating/deactivating whether the password must be alphanumeric or case sensitive.

10.1.1 Creating a new user

Input a user name that is unique and not already in use.

[optional] Input first and last name. These data will be displayed in the software header after successfully logging

on.

Input password. This password must comply with the specifications (minimum password length, alphanumeric

password).

If these conditions are fulfilled, the password must then be input a second time in the field that appears.

Select user group (operator, administrator, line viewer)

Select additional rights (authorization to end the program, authorization to shut down the system, authorization to change tolerances)

Save changes with "Save". After saving, the new user will appear in the user list.

10.1.2 Selecting and changing current users

1. Touch and keep your finger on the desired user name in the user list until the user is selected and the user data become visible in the corresponding fields.

2. Make the desired changes.

3. Save changes with "Save".

10.1.3 Saving entries

Choose "Save" to save your changes.

10.1.4 Deleting entries

Choose "Delete" to delete the entries and reset all input fields.

10.1.5 Description of the parameters

Parameter	Description
Active	The user has access if there is a checkmark here, otherwise this user is barred.
Authorization to end the program	If activated, the button for ending the program is available in the main menu.
Authorization to shut down the system	If activated, the button for shutting down the PC system is available in the main menu.
Authorization to change tolerances	If activated, the user has access to the format-specific tolerances. (<Tolerances> button available in the main menu)
Password expiration	(optional) Specifies how many days a user has to renew his/her password (-1 = inactive)
Automatic logout	(optional) Specifies the number of minutes after which a user will be automatically logged off.
Alphanumeric password	(optional) If activated, the password must contain letters as well as numbers.
Case-sensitive password	(optional) If activated, the password is case-sensitive.

10.2 User groups

The following table shows a listing of available program functions, depending on the group affiliation of the logged-in operator. Individual user rights can also be set individually (see the description of the parameters).

User group Functions	Administrator	Line Operator	Line Viewer
Load format	X	X	X
Create format	X	X	No access
Delete format	X	X	No access
Start production	X	X	X
Error analysis	X	X	No access
Change format tolerances	X	configurable	configurable
Management	X	No access	No access
User management	X	No access	No access
Audit-Trail	X	No access	No access
Standard tolerances	X	No access	No access
Standard parameter	X	No access	No access
Software settings	X	No access	No access

11 Audit-Trail

In the window "Audit-Trail" log files can be displayed and evaluated. This system log contains all user actions, e.g. log-in procedure, start/stop of the production or setting changes. In addition it is possible to view the batch data in this area.
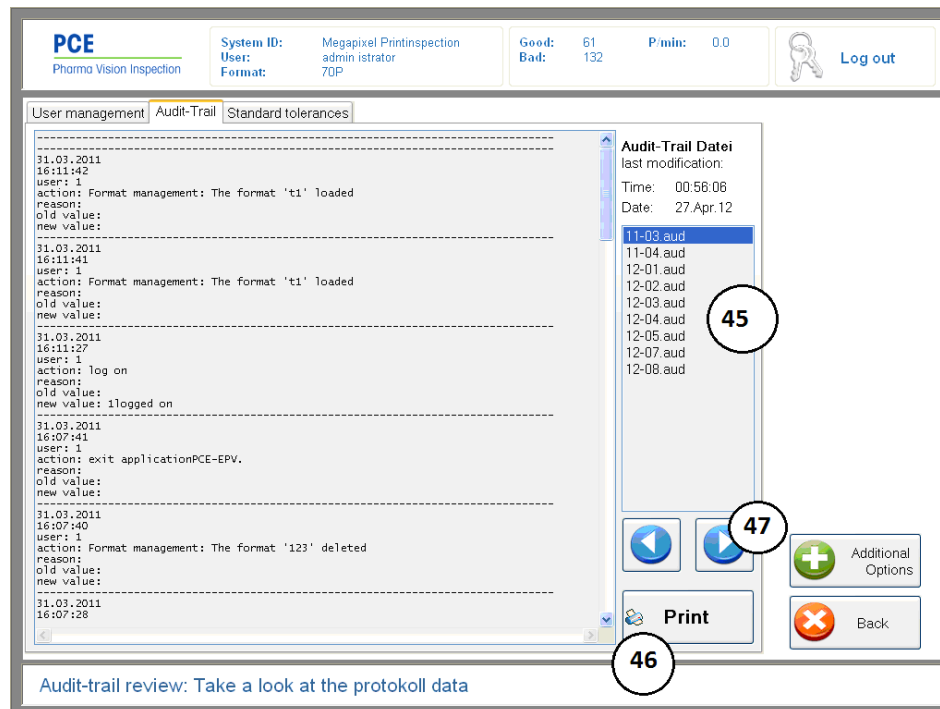
11.1 Overview of the operating controls

Figure 11-1: example of the operating controls

The screen shown in Figure 11-1 provides the following options:

Pos.	Description
(45)	Audit- Trail file: listing of all existing Audit-Trail and batch reports.
(46)	Print: choose "Print" to print out the selected file.
(47)	"<" or ">": choose this button to select the previous or the next file.

12 Appendix 1: Technical Data

12.1 Description of the Megapixel Print Inspection

The operating instructions available describe the procedure of using the PCE Megapixel Print Inspection system.

At the PCE Megapixel Print Inspection system the PCE control system is operated via the user terminal (15″touch screen TFT monitor). Operations are executed by touching the display functions.

Verification of the PCE camera system of all products ensures that only correct and therefore clearly identified products shall leave the machine.

The PCE Megapixel Print Inspection system consists of the following components:

- Illumination unit
- 7 Megapixel cameras
- Computer with respective interfaces
- 15″ touch screen TFT monitor as operations terminal

The following items are located in the integrated switchboard:

- Power supply for all connected cameras and PCE-machines
- Fuses, optocoupler, for the complete galvanic disconnection of all machine inputs and outputs as well as terminal strip and trigger plate.
- Computer

12.2 Technical Data

User terminal	Optimal Resolution: 1024 x 768; Monitor input voltage, current: 110/220V AC 60/50Hz
PCE Mega Pixel-Camera	7 pieces of 2-Megapixelkamera, CCD, meeting the GMP-requirements; 12 V DC , power consumption is model specific power input max. 2A
Switchboard	protection class IP54 / CE; input 110/220V AC 60/50Hz
Illumination unit	24V High power white light LED panel

13 Appendix 2:System restoration for Pilot and Printinspection

13.1 Backup of pilot software

The camera backup can be started directly from the backup menu in the pilot program. This backup contains as a zip file. It can be found in the folder c:\pce\pilot\database. The whole database of the program has to be copied to a separate device. Therefore copy the folder C:\pce\pilot and c:\pce\db to this device. For further information please consult the pilot user manual.

13.2 Backup of Megapixel PrintInspection Software

Figure 13-1:

For creating a backup of the PrintInspection, the monitor has to be changed. Therefore click on the icon called "MPI" (see 0).

Figure 13-2:

After changing to the PrintInspection, the software has to be stopped. Therefore click on button "Stop" (see 1).

Figure 13-3:

When the software has stopped, the screen should look like the picture above. Click on the "Back" button (see 2) to go to the main menu.

Figure 13-4:

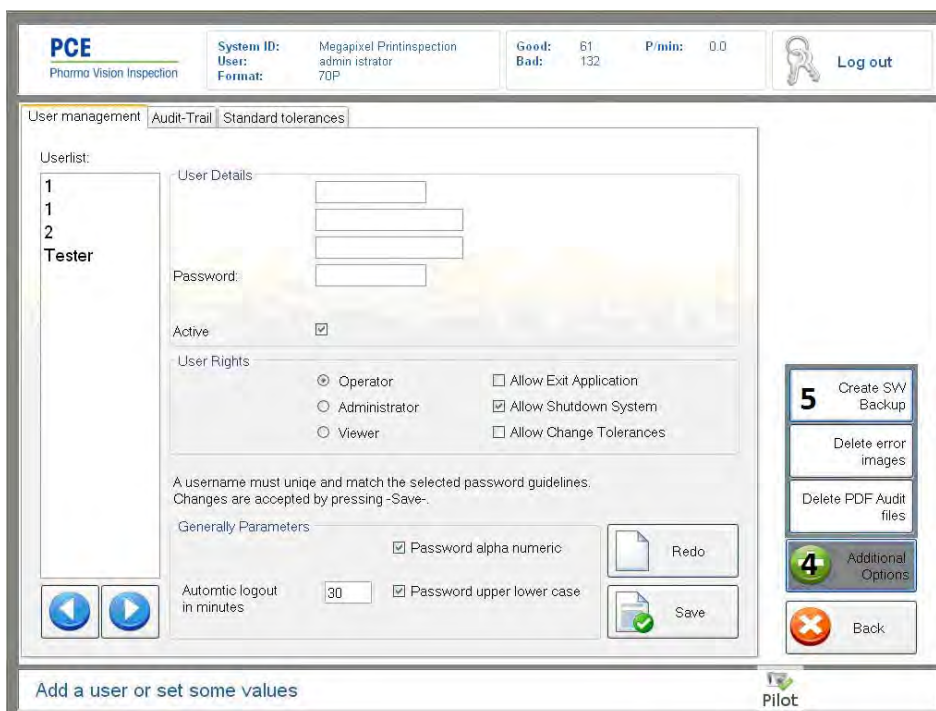At the main menu click at the ″Management″ button (see 3).

Figure 13-5:

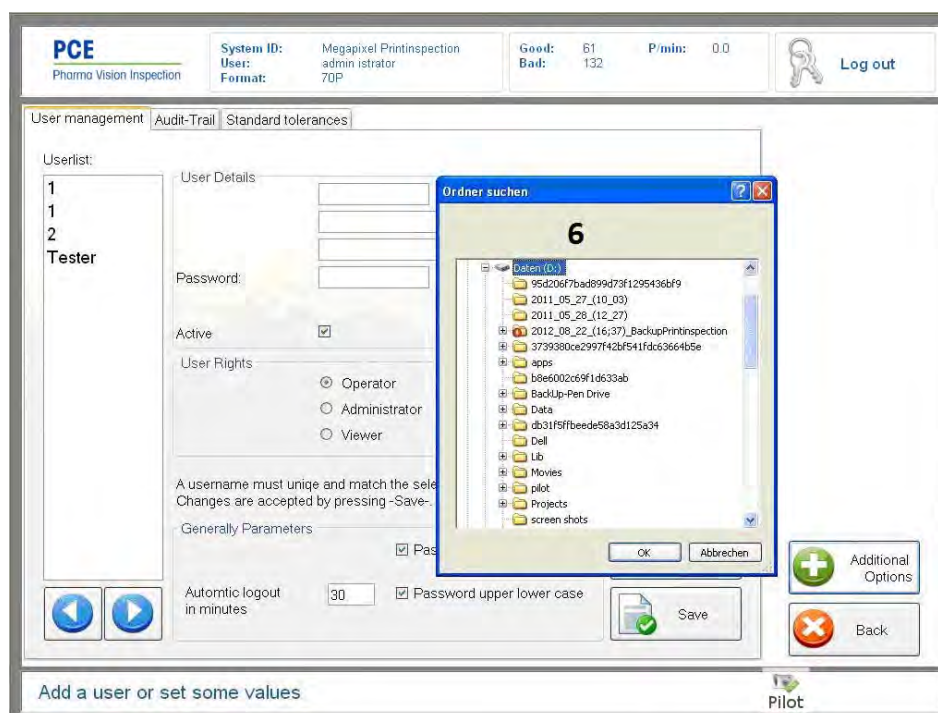Click on ″Additional Options″ (see 4) in this menu and go to ″Create SW Backup″ (see 5).

Figure 13-6:

Connect to an usb drive and search for this folder in the window that appeared after clicking on "Create SW Backup" (see 6). After selecting the right folder click "OK".
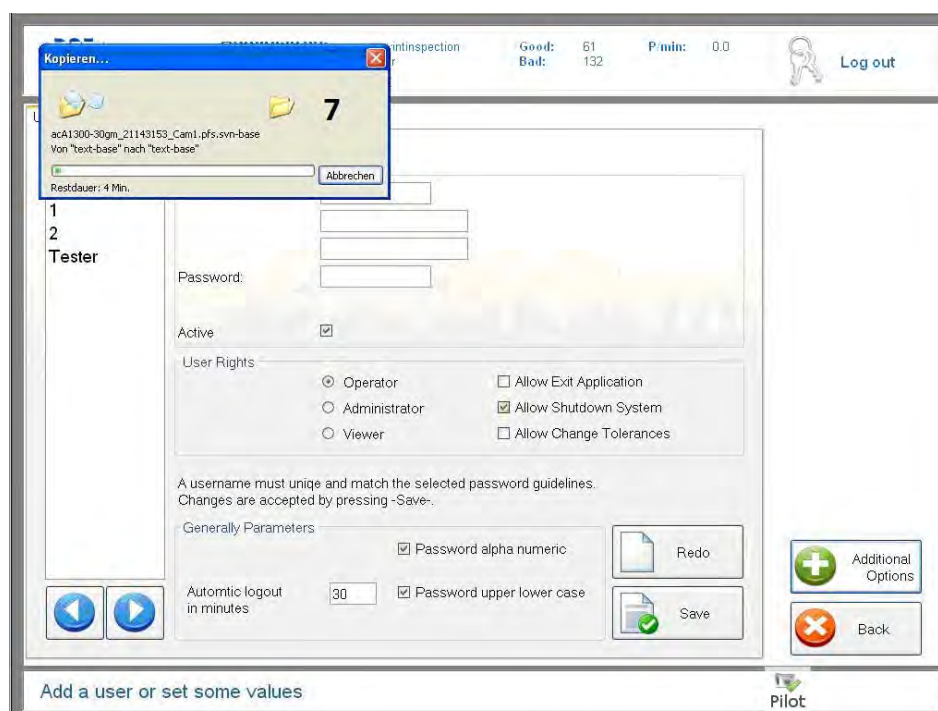

Figure 13-7:

A window should appear that tells you, how long the copy would last (see 7).

The folder is saved with a timestamp that contains date and time. This folder has to be copied to the server.

For example: The copy has started at 16:37 on 22nd august 2012, the folder is named as:

2012_08_22_(16;37)_BackupPrintinspection.

If the program has to be restored, take the backup folder, rename it to Printinspection, copy it to C: and overwrite the current version
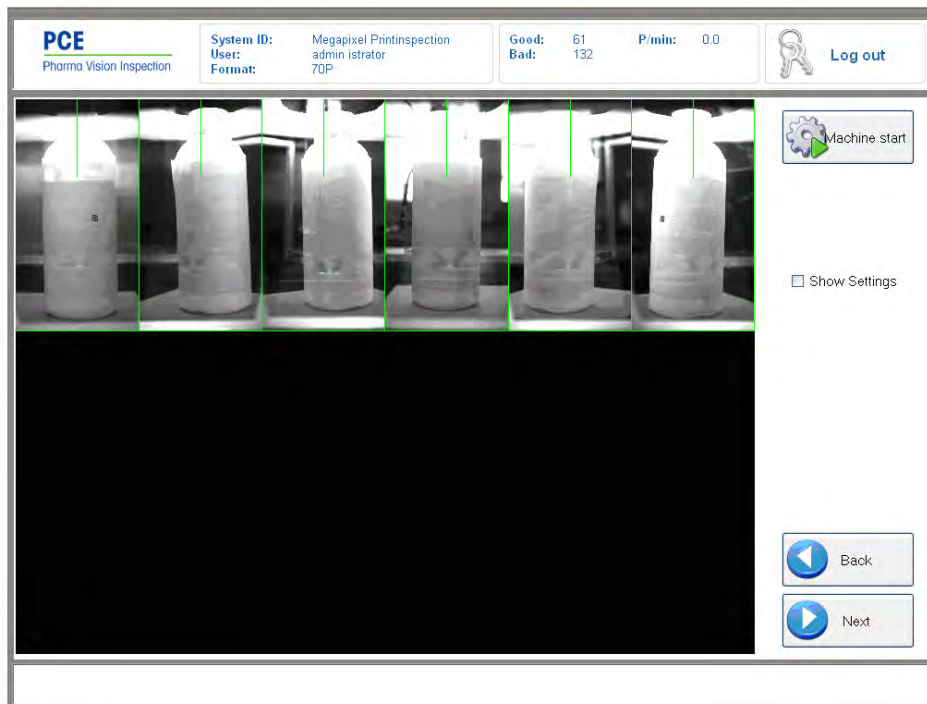
13.3 Centering Bottle in Image

Figure 13-8: Triggered Image

The vertical green lines at the center of each image are used as a reference line to adjust your trigger sensor so that center of the bottle coincides with this line in all the 6 images.